BSmart Chart Mobile Application: A Person-centred Digital Innovation to Empower PLWHIV and Reduce the Burden on Health Facilities

A White Paper

BOHEMIAN SMARTLYTICS LIMITED **FEBRUARY 2022**

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ISSUE AND POSITION

Evidence has shown that patient-centred care (PCC) can improve drug adherence (Bwala et al., 2020) and has been recommended as a global practice to be adopted in primary healthcare and services (WHO, Lateef & Mhlongo, 2020). Unfortunately, most national health promotion policy and specifically national policy on HIV/AIDS are yet to recognize PCC as a global practice and cost-effective approach for delivering quality health care and services. The health policies have only stipulated technologies and health information system as a strategy for strengthening the health system, which could be used for implementing PCC approach. There are no follow-up policies, political will and resources channelled towards PCC. In addition, the adoption of PCC for effective and efficient health services will remain a mirage in some countries due to inadequate management support, insufficient opportunities for further training (Lateef & Mhlongo, 2021) and dearth of mHealth apps (Tahsin et al., 2021; Sheridan, 2016).

PROPOSED PCC SOLUTION

According to Guisti et al (2020), Person-centred healthcare must value the social network of patients, promote quality of life and reform structurally to improve patients' experience interacting with the healthcare system. Furthermore, support must be provided to Staff to flexibly adapt skills, communication, routines or environments for individual patients. Also, Kadia et al (2021) found that in sub-Saharan Africa, the individual level and socioeconomic barriers to ART uptake and retention in care are related to inadequate person-centred healthcare, e.g., stigma, low income, and younger age group, while limited staff capacity, poor adherence to or lack of treatment guidelines are important health system-related barriers. There are also clinical barriers which include, fear of drug toxicity, and contraindications to antiretroviral drugs (ARVs). Availability of psychosocial support was the most frequently reported enabler of uptake at the community level. The BSmart Chart mobile application empowers patients by providing the opportunity and support to make decisions

about their care and treatment in partnership with healthcare professionals. The real-time connectivity features offer patients, clinicians and buddies, the opportunity to have good engagement, where data reports can be shared in real time for discussion of therapy and other care components.

2.1 Patient/Community Level

Case findings and linkage to treatment

"At Risk" feature of the BSmart Chart app enables HIV community case detection and linkage through self-testing, ensuring consent procedures and confidentiality are protected, thus increasing access to HIV services and testing. "At Risk" offers a direct and immediate assessment of prevention services, including pre-exposure and post-exposure prophylaxis (PrEP/PEP), to HIV-negative clients found through testing in populations at elevated risk of HIV acquisition. If a client tests HIV negative, educational materials are sent on a regular basis in the form of notifications (via the app) and text messages, such as articles and newsletters (from credible sources) to ensure client minimises risk of HIV infection. If HIV positive, there is a direct and immediate linkage of patients from testing to treatment, supporting reduction in stigma and discrimination on service access pathways, especially for key populations.

Viral suppression and clients' retention

BSmart Chart app facilitates the adoption and implementation of differentiated service delivery (DSD) models, including six-month multi-month dispensing (MMD), community pharmacy linkage approach, and delivery models to improve ARV adherence and maintain linkage to the program. Continuous monitoring via the app will ensure reductions in morbidity and mortality across age, sex, and risk groups, including 100% access to early diagnosis and viral load testing and lab results delivered via the app in real time. Therapy compliance is increased by sending motivational triggers (e.g., medication and appointment reminders) and feedback on their therapy status. Clinicians are automatically alerted via the app, email, and text message when a patient falls below a threshold for key health related outcomes, such as medication adherence score < 90%, has a suicidal tendency, and poor psychosocial/physical symptoms. Evidence suggests that these interventions have a positive impact on viral suppression and patient retention, the crucial indicators for monitoring and evaluating the performance of ART programs.

Community pharmacy drug dispensing

Globally, there is a growing cohort of stable patients on ART. Additional challenges include limited human resources, overcrowded public hospitals, long distances to health facilities and long waiting times. To alleviate these challenges, patients who are stable on ART should be offered a less intensive care package that can lead to improved outcomes while saving resources, including less frequent clinic visits, out-of -clinic drug refills and reduced laboratory monitoring. This will allow for clinic resources to be directed towards reducing morbidity and mortality among patients presenting with advanced disease, Waldrop et al, 2016. Therefore, community pharmacy drug dispensing is implemented to empower PLHIV

and reduce the burden on health facilities. When medication pill count falls below a threshold set by users, the app automatically triggers a medication refill request. Clinician checks request, approves, and sends the prescription to a participating community pharmacy to dispense medication (a patient centred refill process for ART).

2.2 Facility Level

Reduction in the number of visits per patient/year has many facility level implications, e.g., delivery of lab results to stable patients via the app. Based on a test evaluation of **BSmart Chart** app as an intervention at PEPFAR- supported facilities, the key findings are as follows:

Overcrowded clinics: a minimum 14% reduction in number of visits

Cost: a minimum 3% savings in total cost, after accounting for **BSmart Chart** intervention expenses and mobile phone acquisition. This does not include a huge reduction on out-of-pocket expenses from patients which normally presents a great barrier to access to services.

Long waiting times: an average waiting time reduced by an average of 44 minutes

Human resources: 39% reduction in doctors and 42% reduction in nurse's workload.

This will help HIV services provide better, safer patient care and the most needed attention for non-stable patients, where additional efforts can be invested to support adherence to medication and retention in care. Furthermore, alleviating the problems around extremely crowded clinics and the experience of long waiting times.

EVIDENCE

BSmart Chart App pilot among 35 PLHIV in Nigeria and Kenya has shown that it has the functional capacity for effective implementation of PCC in the public health system. It is feasible, acceptable, and satisfactory among patients and clinicians. Policy makers through NGOs, community-based organisations, HIV service providers and other programs can adopt the **BSmart Chart** App as a driver to improve patient health outcomes and strengthen the health system. Strengthening the health system is one of the critical enablers that UNAIDS posited to end AIDS by 2030, and technologies and health information systems are areas of focus. This places **BSmart Chart** App at the centre of readily available tools and technologies for HIV/AIDS intervention programs in any country. Adopting the **BSmart Chart** App will also assist donors and charity organizations to effectively and efficiently monitor program performance for impact and better patient outcomes. It will also help in the implementation of the full precept of PCC in treatment and care of HIV patients. Thus, the adoption of **BSmart Chart** App as a tool for patient and program management fits perfectly into the global efforts to achieve HIV/AIDS epidemic control.

CONCLUSION

BSmart Chart mobile application, as a digital solution, offers a comprehensive response to the multi-layered challenges and barriers to achieving the end to HIV, end to stigmatisation and end inequality. The app is readily available on play store and app store, which can be used on android mobile phones.

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